STATE OF MONTANA

A REASSESSMENT

OF

EMERGENCY MEDICAL SERVICES

June 21-23 2005

National Highway Traffic
Safety Administration
Technical Assistance Team

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TABLE OF CONTENTS

Subject Page

BACKGROUND....1
ACKNOWLEDGMENTS....4
INTRODUCTION....5
MONTANA EMERGENCY MEDICAL SERVICES (EMS)....6
A. REGULATION AND POLICY....6
Standard....6
Status....6
Recommendations....8
B. RESOURCE MANAGEMENT....9
Standard....9
Status....9
Recommendations....10
C. HUMAN RESOURCES AND TRAINING....12
Standard....12
Status....12
Recommendations....13
D. TRANSPORTATION....14
Standard....14
Status....14
Recommendations....15
E. FACILITIES....17
Standard....17
Status....17
Recommendations....18
F. COMMUNICATIONS....20
Standard....20
Status....20
Recommendations....22
G. PUBLIC INFORMATION, EDUCATION AND PREVENTION....24
Standard....24
Status....24
Recommendations....25
H. MEDICAL DIRECTION....27
Standard....27
Status....27
Recommendations....28
I. TRAUMA SYSTEMS....30
Standard....30
Status....30

Recommendations 31
J. EVALUATION 34
Standard 34
Status 34
Recommendations 36
L. CURRICULUM VITAE 37

BACKGROUND

Injury is the leading cause of death for persons in the age group one through 44 as well as the most common cause of hospitalizations for persons under the age of 40. The financial costs of injuries are staggering: injuries cost billions of dollars in health care and social support resources. In 1995, for example, the lifetime costs of all injuries were estimated at $260 billion annually. These estimates do not include the emotional burden resulting from the loss of a child or loved one, or the toll of severe disability on the injured person and his or her family. Each year over 40,000 people lose their lives on our nation's roads, and approximately 70 percent of those fatalities occur on rural highways. The National Highway Traffic Safety Administration (NHTSA) is charged with reducing accidental injury on the nation's highways. NHTSA has determined that it can best use its limited resources if its efforts are focused on assisting States with the development of integrated emergency medical services (EMS) programs that include comprehensive systems of trauma care.

To accomplish this goal, in 1988 NHTSA developed a Technical Assistance Team (TAT) approach that permitted States to utilize highway safety funds to support the technical evaluation of existing and proposed emergency medical services programs. Following the implementation of the Assessment Program NHTSA developed a Reassessment Program to assist those States in measuring their progress since the original assessment. The Program remains a tool for states to use in evaluating their Statewide EMS programs. The Reassessment Program follows the same logistical process, and uses the same ten component areas with updated standards. The standards now reflect current EMS philosophy and allow for the evolution into a comprehensive and integrated health management system, as identified in the 1996 *EMS Agenda for the Future*. NHTSA serves as a facilitator by assembling a team of technical experts who demonstrate expertise in emergency medical services development and implementation. These experts demonstrate leadership and expertise through involvement in national organizations committed to the improvement of emergency medical services throughout the country. Selection of the Technical Assistance Team is also based on experience in special areas identified by the requesting State. Examples of specialized expertise include experience in the development of legislative proposals, data gathering systems, and trauma systems. Experience in similar geographic and demographic situations, such as rural areas, coupled with knowledge in providing emergency medical services in urban populations is essential.

The Montana Emergency Medical Services (EMS) and Trauma Systems Section, of the Department of Public Health and Human Services (DPHHS) requested the assistance of NHTSA. NHTSA agreed to utilize its technical assistance program to provide a technical reassessment of the Montana Statewide EMS program. NHTSA developed a format whereby the EMS and Trauma Systems Sections staff coordinated comprehensive briefings on the EMS system.

The TAT assembled in Billings, Montana, on June 21-23, 2005. For the first day and a half, over 30 presenters from the State of Montana provided in-depth briefings on EMS and trauma care, and reviewed the progress since the 1991 Assessment. Topics for review and discussion included the following:

General Emergency Medical Services Overview of System Components

- Regulation and Policy
- Resource Management
- Human Resources and Training
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information and Education and Prevention
- Medical Direction
- Evaluation

The forum of presentation and discussion allowed the TAT the opportunity to ask questions regarding the status of the EMS system, clarify any issues identified in the briefing materials provided earlier, measure progress, identify barriers to change, and develop a clear understanding of how emergency medical services function throughout Montana. The team spent considerable time with each presenter so that they could review the status for each topic.

Following the briefings by presenters from the Montana Emergency Medical Services Office, public and private sector providers, and members of the medical community, the TAT sequestered to evaluate the current EMS system as presented and to develop a set of recommendations for system improvements.

When reviewing this report, please note that the TAT focused on major areas for system improvement. Unlike the State's initial assessment that contained many operational recommendations, several of which were identified as a priority, this report offers fewer yet broader recommendations that the team believes to be critical for continued system improvement.

The statements made in this report are based on the input received. Pre-established standards and the combined experience of the team members were applied to the information gathered. All team members agree with the recommendations as presented.

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ACKNOWLEDGMENTS

The TAT would like to acknowledge the Montana EMSTS Section for its support in conducting this assessment.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Montana. Each presenter was responsive to the questions posed by the TAT which aided the reviewers in their evaluation. Many of these individuals traveled considerable distance to participate.

Special recognition and thanks should be made regarding the extraordinary efforts taken by Jim DeTienne for the well-organized, comprehensive briefing materials sent to the team members in preparation for the reassessment.

INTRODUCTION

Montana is a frontier state of austere beauty and remarkable contrasts. Geographically the fourth largest state in the country, it contains fewer inhabitants than the smallest of our states. Resulting is six Montanans per square mile of prairie in the east and of mountains of the Continental Divide in the west. From 1,800 feet of elevation to nearly 13,000, and from 117 degrees of blistering heat to -70 degrees of equally blistering cold, these and every combination in between test the EMS provider. The lot of the paid or volunteer professional seems even more daunting when one considers great distances, geographic barriers, and too few fellow EMS providers.

For severely ill and injured patients, the fibers that are the resources for their care also stand in contrast to one another, yet are being increasingly woven into a fabric of comprehensive care. The majority of prehospital provider services rely on basic level volunteers, while a number of services provide paramedic level care around the clock. Bridging these are new capabilities afforded patients by a system of innovative licensure endorsements. Most hospitals are Critical Access Hospitals, providing stabilizing waypoints in the most distant communities for the very ill and injured. Level II and III trauma centers, on the other hand, grace the state's population centers, with air-medical and ground critical care and advanced life support resources connecting them to the waypoints.

At a higher level, watershed system events have occurred or are on the horizon. The splitting of responsibilities between the EMS and Trauma Systems (EMSTS) Section and the Board of Medical Examiners (BOME) has created controversy and opportunity. Creating some confusion among the EMS community, having happened rapidly, it also creates some freedom for EMSTS Section to focus on system lead agency activities. Visionary concepts for real-time, interoperable voice communications and data access may give Montana EMS providers the first such tools in the country to better care for their patients. As progress is made in developing these tools, it is vital that the ultimate users be informed and consulted.

The Technical Assistance Team appreciated the forthright testimony of those who participated in the process, and the hospitality of all. The dedication of Montana's EMS providers to the cause of their patients, from the scene to the ER to the OR and elsewhere was most evident to us all.

No matter how daunting an environment they encounter at whatever level of the system, we are confident that those charged with organizing and providing Montana's EMS will innovate and persevere.

MONTANA EMERGENCY MEDICAL SERVICES (EMS)

The TAT revisited the ten essential components of an optimal EMS system that were used in the *State of Montana: An Assessment of Emergency Medical Services*, in June 1991. These components provided an evaluation or quality assurance report based on 1989 standards. While examining each component, the TAT identified key EMS issues, reviewed the State's progress since the original report, assessed its status, and used the 1997 Reassessment Standards as a basis for recommendations for EMS system improvement.

A. REGULATION AND POLICY

Standard

To provide a quality, effective system of emergency medical care, each EMS system must have in place comprehensive enabling legislation with provision for a lead EMS agency. This agency has the authority to plan and implement an effective EMS system, and to promulgate appropriate rules and regulations for each recognized component of the EMS system (authority for statewide coordination; standardized treatment, transport, communication and evaluation, including licensure of out-of-hospital services and establishment of medical control; designation of specialty care centers; PIER programs). There is a consistent, established funding source to adequately support the activities of the lead agency and other essential resources which are necessary to carry out the legislative mandate. The lead agency operates under a single, clear management structure for planning and policy setting, but strives to achieve consensus among EMS constituency groups in formulating public policy, procedures and protocols. The role of any local/regional EMS agencies or councils who are charged with implementing EMS policies is clearly established, as well as their relationship to the lead agency. Supportive management elements for planning and developing effective statewide EMS systems include the presence of a formal state EMS Medical Director, a Medical Advisory Committee for review of EMS medical care issues and state EMS Advisory Committee (or Board). The EMS Advisory Committee has a clear mission, specified authority and representative membership from all disciplines involved in the implementation of EMS systems.

Status

A major change occurred in the Montana EMS System in February 2004. The Montana Board of Medical Examiners (BOME) recognized the fact that a more active role by the Board was necessary in carrying out its statutory requirements for the licensing and training responsibilities for pre-hospital personnel. The Board is comprised of members

that are representatives of the holders of licenses issued by the Board with the exception of EMS. Currently the board has several members that have an interest in EMS issues. However, given the fact that members serve only for a limited time without the institutionalization of an EMS licensee representative on the Board, EMS does not have the assurance of continued representation in future years.

In an effort to accomplish a smooth transition of regulatory responsibilities, two positions were transferred from the EMS and Trauma Systems (EMSTS) Section of the Department of Public Health and Human Services (DPHHS) to the BOME. The transfer of responsibilities removed the examination process (both written and practical), and regulatory functions regarding personnel licensing from the DPHHS, EMSTS Section.

Although the change appears to be working there is confusion at the provider level as to each agency's role in providing the statewide EMS regulatory oversight. DPHHS, EMSTS Section has statutory authority to provide regulatory oversight and serve as lead for the statewide EMS system. This includes a broad range of system related responsibilities apart from the licensing and enforcement issues relating to personnel. One example of a regulatory responsibility not related to personnel licensing issues is the requirement for data submission by all EMS agencies in the state.

The data submission rule is not currently being enforced due to the unavailable technological resources. The state is now making a significant investment in the development of a web-based EMS data system and it is critical that each local system provide the data to assist in the planning and evaluation efforts of the statewide EMS system**.**

The EMSTS Section views this change as an opportunity to better fulfill its lead agency responsibilities and provide the local EMS systems with additional technical assistance in the areas of planning and system development. To assist in this effort, the EMSTS Section established a voluntary EMS System Task Force in early 2004 that meets quarterly to assist the agency in developing an EMS system plan that identifies goals with measurable objectives.

NHTSA conducted an EMS assessment for the state in 1991. As a result of the lack of funding and staffing limitations associated with increased workload demands, the Section was unable to address many of the 1991 recommendations. With the personnel regulatory responsibilities now residing with the BOME, the EMSTS Section in consultation with the EMS System Task Force plans to revisit many of the previous assessment recommendations. In addition, the Section will review and address the recommendations included in the 2005 assessment. However, this is an ambitious goal given the limited staff currently available in the EMSTS Section.

The BOME has made many positive changes in the licensing procedures since taking on its new role in February. The integration of EMS licensure with the Board's web-based licensure renewal process has been well received by the EMS community. The

process for locally administering examinations is already proving to be of tremendous value to the local EMS systems. In the absence of a state EMS medical director, the Board is required to take a more hands-on role in providing medical direction. This includes the development and adoption of statewide protocols and providing off-line medical direction to many local EMS systems that provide service at the basic level.

Recommendations

- **The legislature should amend the Montana BOME Statute to add a member to represent the EMS community. The EMS representative should be a currently licensed and practicing EMS professional.**

- The EMSTS Section should enforce the current rule requiring data submission to the state by all licensed EMS systems in the state as soon as the system under development is complete.

- **The legislature, state government agencies and the EMS community should recognize the EMSTS Section as the lead agency for the planning, development, and implementation of Montana's EMS system.**

- EMSTS Section and BOME should develop strategies to identify funding sources to support the necessary staffing and development of the state's EMS system, as they need adequate and stable funding to carry out their statutory responsibilities.

- **The legislature should fund a State EMS Medical Director position.**

- The BOME should develop and implement endorsements for licensed EMS professionals functioning on air medical systems.

B. RESOURCE MANAGEMENT

Standard

Central coordination and current knowledge (identification and categorization) of system resources is essential to maintain a coordinated response and appropriate resource utilization within an effective EMS system. A comprehensive State EMS plan exists which is based on a statewide resource assessment and updated as necessary to guide EMS system activities. A central statewide data collection (or management information) system is in place that can properly monitor the utilization of EMS resources; data is available for timely determination of the exact quantity, quality, distribution and utilization of resources. The lead agency is adequately staffed to carry out central coordination activities and technical assistance. There is a program to support recruitment and retention of EMS personnel, including volunteers.

Status

Montana today has 5,000 EMS providers, an increase of 25% since 1991. This increase in dedicated personnel is a tribute to everyone involved in the state's EMS system. A remaining concern is the need for a comprehensive system for assessing, planning, developing, deploying and coordinating EMS resources.

Notable improvements in 9-1-1 systems are visible. Today 100% of Montana residents are served by 9-1-1 with 62% having E-9-1-1 service; this is an improvement from the reported 70% coverage in 1991. A major 9-1-1 problem today is cell phone access to 9-1-1. EMS dispatch centers report an increasing number of calls, especially for trauma, being made by cell phone users. At the same time, cell phone coverage in rural areas is far from complete; perhaps an even greater concern is that many problems are reported with inaccurate routing of cell 9-1-1 calls to PSAPs.

Physical addressing in rural areas remains a concern. This issue is being improved slowly, but some citizens' desire for privacy may have prevented more rapid progress in a critical area for improving EMS access to patients.

The 1991 TAT recommended that alternative EMS licensing levels be considered. This has been accomplished in a comprehensive manner beginning with the recent move of EMS personnel licensing to the Board of Medical Examiners (BOME). General satisfaction is expressed with the comprehensive license "endorsements" authorized by board rule and overseen by EMS medical directors. Provider acceptance is also expressed for the increased standards and fees required by the BOME because they are understood to be elements of professional recognition by the state.

Rotary and fixed wing air medical services are routinely available in most of Montana. However, the entire state does not enjoy the availability of a helicopter ambulance that can be dispatched to an injury scene. EMS helicopters sometimes rendezvous with ground EMS at rural hospitals in order to transport trauma and other critical patients to higher levels of care. When distances are extreme, fixed wing air ambulances can be used. However, it is not clear to what extent air medical response is coordinated with the 9-1-1 system or that uniform criteria exist for initiating an air medical response or that all air medical services operate with similar procedures for initiating a response and communicating with other emergency agencies.

Montana's public service volunteers are an essential human resource whose value should be recognized in public policy. Volunteer recruitment and retention is widely regarded as a priority issue that must be addressed. A fundamental responsibility of volunteer service management will always include effective recruitment and retention of volunteers. The current worker's compensation system is insufficient because it does not place an appropriate value on volunteer labor. The proposed volunteer income tax relief legislation would also help appropriately value the volunteer resource.

An effective medical response to disasters requires real time coordination of EMS resources. Within state government, only the EMSTS Section possesses the capability to accomplish this mission.

While development is underway, the state EMS plan has not been completed. This plan is needed to guide the process of developing and improving the system.

EMS data systems are critical to evaluating and improving all elements of Montana's EMS system. Much work has already been done to develop a web-based system compatible with National EMS Information System (NEMSIS) standards.

Some respondents reported that they could reduce their costs if a statewide EMS purchasing collective was created that could lower costs through group purchasing power. Small EMS agencies often pay full list price for everything from bandages to ambulances.

All ambulance services should bill third party payers- failure to do this worsens financial problems and in effect causes local taxpayers to subsidize health insurance providers. Billing, however, is an administrative specialty that some volunteer agencies may need to delegate to organizations that have billing expertise.

Recommendations

- Wireless telephone service providers and PSAPs should improve cell phone 9-1-1 access and work to resolve wireless 9-1-1 routing problems.

- The EMSTS Section should work with air medical service providers to ensure their functional integration with the EMS system, and develop uniform policies and practices with regard to how they initiate a response and interface with other emergency services and personnel.

- All ambulance services should appropriately bill third party payers. The EMSTS Section should provide technical assistance when requested.

- **The legislature should amend the worker's compensation laws to provide adequate protection to volunteer EMS workers for on-the-job injuries.**

- The EMSTS Section should study issues related to EMS worker professional liability and make recommendations to the legislature.

- EMSTS Section should disseminate successful recruitment/retention concepts, practices and policies to all agencies.

- **The legislature should amend state law to allow EMTs to work in hospitals and other facilities as EMTs. EMSTS Section/BOME should collaborate with the Montana Hospital Association.**

- The Montana Disaster and Emergency Services Division should designate the EMSTS Section as the organization to direct the state medical response to Mass Casualty Incidents (MCI). The designation should include the responsibility and funding to begin an MCI management planning process.

- **The EMSTS Section should complete the state EMS plan this year. It should include recognition of the EMSTS Section as the state EMS lead agency with the authority to plan and coordinate resources.**

- The complete implementation of the new EMS data system should be accomplished by Fall 2005.

- The EMSTS Section should encourage the development of EMS purchasing collectives or other effective means to lower service (e.g., CQI, billing), equipment and supply costs to Montana EMS agencies. It may be possible to bid state contracts for such items that would then be available to local agencies at the state contract prices.

C. HUMAN RESOURCES AND TRAINING

Standard

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the State. The State EMS lead agency has a mechanism to assess current manpower needs and establish a comprehensive plan for stable and consistent EMS training programs with effective local and regional support. At a minimum, all transporting out-of-hospital emergency medical care personnel are trained to the EMT-Basic level, and out-of-hospital training programs utilize a standardized curriculum for each level of EMS personnel (including EMS dispatchers). EMS training programs and instructors are routinely monitored, instructors meet certain requirements, the curriculum is standardized throughout the State, and valid and reliable testing procedures are utilized. In addition, the State lead agency has standardized, consistent policies and procedures for certification (and re-certification) of personnel, including standards for basic and advanced level providers, as well as instructor certification. The lead agency ensures that EMS personnel have access to specialty courses such as ACLS, PALS, BTLS, PHTLS, ATLS, etc., and a system of critical incident stress management has been implemented.

Status

The Montana Board of Medical Examiners (BOME) has recently assumed the responsibility of licensing EMS personnel. This has had a beneficial effect of fostering a professional image for EMS providers and enabling additional EMT skills through an endorsement process (see Resource Management section).

Another identified benefit is a statewide plan to adopt NREMT computer adaptive testing (CAT). One contract is being completed with the state vocation education system that will provide CAT at the vocational schools, thereby ensuring reasonable access for EMT students to the upcoming NREMT CAT system beginning in 2007.

Relieving the state EMSTS Section of its personnel licensure responsibilities is beneficial in that it frees that agency to plan and improve other aspects of the EMS system. This includes the personnel training system. The 1991 TAT report contains several recommendations for improving EMT basic training and in-service training that were acknowledged and updated in the current 2005 TAT briefing document. Training issues identified include:

1. Availability of instructor training and certification

2. The need to address specialized/local training gaps concerning wilderness

emergencies, triage & transfer protocols, geriatric emergencies and other topics

3. Availability of EMS management training

4. Lowering costs and improving availability of EMT/First Responder training.

While the BOME has statutory authority for both personnel licensure *and* training, the board is funded exclusively through licensure fees. This limits BOME investment in improving/expanding EMS training.

A uniform theme expressed by many who briefed the 2005 TAT was the overriding need for effective personnel recruitment and retention (for more information see the Resource Management section). The availability of reasonably accessible and affordable EMT and First Responder courses along with in-service training taught by qualified instructors is a necessary component for successfully resolving this issue. The state had a nationally recognized and locally successful mobile trauma training unit resource that was unfortunately discontinued.

Recommendations

- **EMSTS Section should, under its system development authority, fund improvements in the personnel training system. These funds should be used to improve instructor qualifications, expand training equipment and ensure medical oversight of training and education programs.**

- EMSTS Section should explore training options, such as distance learning, CDs and interactive DVDs, training equipment caches and web-based training. Select the technologies most appropriate for Montana EMS providers and then secure the funds needed to provide it to all EMS personnel.

- EMSTS Section should develop and fund mobile training resources such as the mobile trauma training unit and the STARS mobile education program.

D. TRANSPORTATION

Standard

Safe, reliable ambulance transportation is a critical component of an effective EMS system. The transportation component of the State EMS plan includes provisions for uniform coverage, including a protocol for air medical dispatch and a mutual aid plan. This plan is based on a current; formal needs assessment of transportation resources, including the placement and deployment of all out-of-hospital emergency medical care transport services. There is an identified ambulance placement or response unit strategy, based on patient need and optimal response times. The lead agency has a mechanism for routine evaluation of transport services and the need for modifications, upgrades or improvements based on changes in the environment (i.e., population density). Statewide, uniform standards exist for inspection and licensure of all modes of transport (ground, air, water) as well as minimum care levels for all transport services (minimum staffing and credentialing). All out-of-hospital emergency medical care transport services are subject to routine, standardized inspections, as well as spot checks to maintain a constant state of readiness throughout the State. There is a program for the training and certification of emergency vehicle operators.

Status

Montana has a tiered response system starting with non-transporting quick response units. Of these, 86 provide basic, 12 provide intermediate, and 20 provide advanced life support levels of care. The quick response unit personnel initiate patient care until an ambulance arrives. Due to the limited staff with advanced life support (ALS) training, quick response unit staff cannot provide ALS twenty-four hours a day, seven days a week in all areas.

Seventy-six ambulance services provide basic life support (BLS), 22 provide intermediate level care, and 39 provide ALS care. Current rules require that all transport ambulances be staffed with a minimum of one licensed EMT-Basic and one First Responder. Of full time paid services, 10 are private services, 5 are fire based, and 1 is hospital based. All others are considered volunteer although some receive a small stipend for on call and duty time. Not all ambulance vehicle operators complete an ambulance vehicle operations course.

The system also utilizes four rotor wing and seven-fixed wing air medical services. All but one is hospital based. Currently there is no BOME licensing endorsement for air medical staff.

It is unclear to what extent the air medical services are integrated into the EMS system.

Currently, there are no statewide protocols or processes established for the dispatch and cancellation of air medical resources as recommended in the 1991 assessment.

The state has minimum vehicle equipment requirements codified in rule and inspection procedures for licensure. The state is proposing rule changes to allow the EMSTS Section to license local EMS systems in the future as opposed to EMS services. This will allow communities the ability to better understand and support the level of service desired for its citizens.

An assessment by the Critical Illness and Trauma Foundation was conducted in 2002 to assist communities in determining future EMS needs. However, no follow-ups have been conducted to evaluate the effectiveness of the assessment.

EMS response and coordination during disasters are currently not addressed in any plan. In order to have an organized and effective response with optimal utilization of the State's medical resources, it is essential that a response plan be developed with mutual aid agreements signed by all EMS systems in Montana. This effort will require consensus building and must include all EMS stakeholders and the state emergency management agency.

The National Incident Management System (NIMS) training is required for future federal homeland security funding. As recommended in the 1991 assessment, EMSTS Section should ensure that all EMS ground and air medical personnel are trained in incident command.

Recommendations

- The BOME should establish a licensing endorsement for air medical EMS personnel.

- **EMSTS Section should ensure the state's air medical services are integrated into the statewide EMS system, including a statewide protocol or procedure for the dispatch and cancellation of air medical services.**

- EMSTS Section should develop and implement statewide mutual aid agreements for all ground and air medical services.

- EMSTS Section should collaborate with the Montana Disaster Emergency Service Division to ensure the role of EMS is defined and included in the state's disaster plan and ensure all EMS services are trained in incident command (NIMS).

- EMSTS Section should make available ambulance vehicle operations courses to the EMS services as recommended in the 1991 NHTSA assessment.

E. FACILITIES

Standard

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. The lead agency has a system for categorizing the functional capabilities of all individual health care facilities that receive patients from the out-of-hospital emergency medical care setting. This determination should be free of political considerations, is updated on an annual basis and encompasses both stabilization and definitive care. There is a process for verification of the categorizations (i.e., on-site review). This information is disseminated to EMS providers so that the capabilities of the facilities are known in advance and appropriate primary and secondary transport decisions can be made. The lead agency also develops and implements out-of-hospital emergency medical care triage and destination policies, as well as protocols for specialty care patients (such as severe trauma, burns, spinal cord injuries and pediatric emergencies) based on the functional assessment of facilities. Criteria are identified to guide interfacility transport of specialty care patients to the appropriate facilities. Diversion policies are developed and utilized to match system resources with patient needs; standards are clearly identified for placing a facility on bypass or diverting an ambulance to another facility. The lead agency has a method for monitoring if patients are directed to appropriate facilities.

Status

The strength and foundation of the Montana EMS and trauma care systems is in the individuals who work in the prehospital setting and the hospitals, both large and small. In recent years, several hospitals have even endured the scrutiny of site reviewers from the American College of Surgeons to become ACS verified trauma centers. The commitment to excellence is clearly present in Montana hospitals.

Montana has 15 hospitals, 42 Critical Access Hospitals (CAH), three Indian Health Service (IHS) hospitals, and three clinics for a total of 63 facilities. Most hospitals (because of population and geographic constraints) are located a large distance from each other and emergency patients are usually delivered to the closest facility. These facts make it vitally important for each facility to play as large a role as possible (commensurate with its capabilities) in the care of EMS and trauma system patients.

It is likely that some patients taken to the closest facility would benefit from a change in philosophy to “the closest **appropriate** facility”. It makes no sense to take a hypotensive patient bleeding to death from a ruptured spleen to the closest facility if a surgeon is available at a facility 20 minutes further away. If the EMTs are providing the

patient with intravascular volume, there is little additional that a nurse, PA, or ED physician has to offer during a stop at a facility with no surgeon. Neither hospital categorization based on level of capability nor triage protocols have been initiated in Montana.

There exists no burn unit within Montana so these patients are transferred either to Salt Lake City or Seattle. This is appropriate considering the population of Montana is less than one million. Patients with spinal cord injuries are treated in state.

It is noted that the organization of CAH administrators has been very supportive of EMS system development activities. An interested hospital administrator stated that because of the inadequate number of EMTs in his county, nurses or physicians had to occasionally transfer patients (leaving the facility short of healthcare providers). Trauma team activation criteria are currently being developed at the hospital level and trauma system rules are pending public hearing and adoption. Patient referral is usually physician-directed and based on physician-specific preferences.

Neurosurgery coverage is an issue in Montana as it is in many states today. The inadequate number of neurosurgeons willing to take emergency call is even a problem in locations where the physicians (mostly surgeons) receive call pay from the hospital. Physician call pay is an expensive proposition for hospitals but is increasingly necessary and more prevalent. The State needs to provide a solid funding mechanism to protect and support the hospitals in this time of change and relative shortage of surgical specialists.

A completed recommendation from the 1991 report is that “The hospital should be easily accessible with its routes well-marked in every community and have designated ambulance routes.” The only other recommendation that has been completely addressed is “Development of the MAF [i.e. CAH] as an interval care provider in remote areas is encouraged and should be further developed and documented.” Montana has done an excellent job in using the Critical Access Hospitals to provide emergency care. Challenges remain in appropriate use of these facilities (the closest **appropriate** facility concept) and education of the care providers in these facilities as regards basic trauma care.

Recommendations

- **EMSTS Section should ensure that each health care facility (including CAHs) is categorized as to capabilities - for trauma care, surgical capability, and other emergencies.**

- EMSTS Section should continue to support outside review (such as by the ACS) for verification of designated trauma care facilities, especially regional trauma

centers and area trauma hospitals.

- **EMSTS Section should develop triage protocols to ensure that the right patient goes to the right facility every time, immediately after statewide hospital categorization/designation has been completed.**

- EMSTS Section should ensure that each health care facility (including CAHs) is involved with the local EMS agency(ies). These hospitals should provide skill-retention training for EMTs, ideally in the emergency department.

- **The legislature should provide a reliable funding stream to support trauma centers for the increased expense of being ready to provide care to the injured patient (staffing requirements, uncompensated care, and physician call pay).**

- EMSTS Section should ensure that written transfer agreements are in place for each facility that may need to transfer a patient to a higher level of care, especially for trauma patient transfer.

- EMSTS Section should ensure that hospitals participate in recruitment and retention of local EMTs, an invaluable system resource.

F. COMMUNICATIONS

Standard

A reliable communications system is an essential component of an overall EMS system. The lead agency is responsible for central coordination of EMS communications (or works closely with another single agency that performs this function) and the state EMS plan contains a component for comprehensive EMS communications. The public can access the EMS system with a single, universal emergency phone number, such as 9-1-1 (or preferably Enhanced 9-1-1), and the communications system provides for prioritized dispatch. There is a common, statewide radio system that allows for direct communication between all providers (dispatch to ambulance communication, ambulance to ambulance, ambulance to hospital, and hospital to hospital communications) to ensure that receiving facilities are ready and able to accept patients. Minimum standards for dispatch centers are established, including protocols to ensure uniform dispatch and standards for dispatcher training and certification. There is an established mechanism for monitoring the quality of the communication system, including the age and reliability of equipment.

Status

Montana's EMS system still relies upon essentially the same communications system infrastructure that the TAT encountered in 1991. With aging mobile radios, towers and antennae, and hospital base stations, the system is at risk. Most of this equipment must be replaced by 2013 when FCC narrow-banding rules become effective. However, planning for replacement is indicated now. Since the 1991 visit, the use of cell phones for EMS communications has augmented the VHF system, though coverage is found primarily along major roadways.

The State's Department of Administration has begun an infrastructure replacement program based on APCO Project 25 (P25) standards for interoperability. An ambitious, multi-million dollar system build-out in the state's capital and surrounding county, and another demonstration project in the northern tier using $250,000 in federal funding have paved the way for future system replacement. Interoperability consortia have been designated in the rest of the state, as one was for the northern tier project, to plan for their P25-compliant systems.

There is controversy surrounding the P25 initiative. There seems to be a lack of understanding among leaders at the EMS service level of the purpose of P25-based system development. It is evident that this development has been largely a top-down process without participation of, or buy-in by, EMS service providers statewide. There is still no statewide EMS communications system plan, though one was recommended

in the 1991 assessment. Therefore, there is no context within which to understand the process, funding plans, or desired endpoint of this P25 development. Nor do providers understand that P25 is an incomplete suite of standards for which there is no agreed upon compliance testing. In addition, at this early stage, a vendor's assurance of "P25 compliant" hardware does not guarantee its interoperability with other vendors' equipment. These factors seem to have resulted in some troubling symptoms of developmental disorder for this system such as:

- "P25" radios and tower equipment of mixed manufacture which don't work together, causing skepticism about the P25 concept among providers;

- Complaints that the money so far invested in P25 equipment (which is significantly more expensive than its non-P25 counterparts) would have been better spent to address even more needs for infrastructure replacement by employing non-P25 equipment; and

- A perception that the State will block the purchase of any non-P25 equipment utilizing federal grant funds regardless of interoperability needs of the locale in which the equipment will be employed (contrary to federal intent as recently emphasized at a USDHS SafeCom meeting).

The State Interoperability Executive Committee, with representation from the EMSTS Section, has taken a lead in P25. Interoperability consortia are intended to represent service level providers.

The P25 concept is forward-thinking and will become integral to future EMS communications. Its progress may be jeopardized by top-down planning and implementation and premature adherence to standards which are incompletely developed and implemented on the national level.

Basic 9-1-1 service is available to 100% of the population. Enhanced-9-1-1 (E-9-1-1) service is available to 62% of the population through 19 of 58 public safety answering points (PSAPs), a marked and commendable improvement from the 1991 visit. Cell coverage is incomplete, but at least two counties are developing wireless enhanced 9-1-1 capacity (WE-9-1-1). Thirty-seven PSAPs have committed to providing E-9-1-1 and WE-9-1-1 in the near future.

This 9-1-1 development has also been criticized, however, for its top-down planning, implementation, and dictated use of 9-1-1 phone surcharges. There is a 9-1-1 advisory committee on the state level in which EMS is represented, but there appears to be information dissemination and planning participation disconnects with local PSAPs and with public safety providers.

There are no uniform statewide standards for PSAPs (e.g. facilities, equipment, security, staffing, training). Further, there are no dispatch protocols, or emergency

medical dispatch training or requirements.

With no statewide communications plan, there are no provisions for communications system quality improvement or for monitoring the status and replacement needs of the communications infrastructure.

The state has begun to plan and implement a statewide Health Information and Resource Management System (HIRMS) utilizing an Online Management and Resource Database (OMAR) and linkage to other key EMS, health, hospital and system status databases and resource management systems. This is intended to provide real-time, interdisciplinary operational information sharing and resource management on a day-to-day basis and in the event of a major incident. It is consistent with national consensus recommendations being developed by the ITS America Public Safety Advisory Group for the future of EMS communications and is to be commended as forward-thinking.

Recommendations

- **EMSTS Section should establish a statewide EMS communications system plan (or the Department of Administration should establish a statewide multi-disciplinary communications plan which includes EMS, police, fire, emergency management, transportation, public works, utilities and others). Include provider-level participation in, and statewide provider access to, the plan as it develops.**

    - Include the P25 development process in the context of the statewide communications plan. Encourage the SIEC and the Department of Administration, in their leadership of this development to:

        - Provide buyer guidance on mixed-vendor equipment until standards are finalized and compliance testing is available;

        - Moderate the speed of system commitment to P25 equipment allowing narrow-band analog equipment purchase, with or without federal grant funds, as infrastructure replacement needs dictate. Tolerance of non-P25 purchases should be especially extended to those more operationally isolated areas where near-future needs for interoperability are less evident; and

        - Provide service level system-user education on the benefits of P25 programming into the future.

    - Include provisions for ongoing communications system quality improvement and infrastructure monitoring and replacement.

- Include provisions for complete implementation of E-9-1-1 and WE-9-1-1 systems, and for addressing Voice Over Internet Protocol 9-1-1, in the statewide communications plan.

- Include HIRMS/OMAR and encourage and continue its development. Assure that EMS and other public safety, health, and hospital providers are given an opportunity to stay abreast of, and participate in, its planning and implementation.

- **Department of Administration should develop standards and a process for PSAP designation. This should include provisions for emergency medical dispatch and other resource dispatch.**

- EMSTS Section should develop a system to inform public safety providers of the evolving plan for 9-1-1 implementation and to encourage their participation in that development (e.g. by on-line review of draft documents).

G. PUBLIC INFORMATION, EDUCATION AND PREVENTION

Standard

To effectively serve the public, each State must develop and implement an EMS public information, education and prevention (PIEP) program. The PIEP component of the State EMS plan ensures that consistent, structured PI&E programs are in place that enhance the public's knowledge of the EMS system, support appropriate EMS system access, demonstrate essential self-help and appropriate bystander care actions, and encourage injury prevention. The PIEP plan is based on a needs assessment of the population to be served and an identification of actual or potential problem areas (i.e., demographics and health status variable, public perceptions and knowledge of EMS, type and scope of existing PIEP programs). There is an established mechanism for the provision of appropriate and timely release of information on EMS-related events, issues and public relations (damage control). The lead agency dedicates staffing and funding for these programs, which are directed at both the general public and EMS providers. The lead agency enlists the cooperation of other public service agencies in the development and distribution of these programs, and serves as an advocate for legislation that potentially results in injury/illness prevention.

Status

Montana established a plan for an EMS public information, education and prevention (PIEP) program in 1984. The 1991 assessment team recommended that it be updated and implemented. This has yet to happen.

The 1991 assessment report recommended the hiring of a one FTE position to conduct EMS system, injury prevention, citizen access, recruitment and retention, and related PIEP programming. Through federal EMS for Children funding, the EMSTS Section established an injury prevention program with a full-time staff member in 1996. This position has addressed a variety of injury prevention needs, beyond those of childhood injury, including suicide prevention, senior falls, smoke alarm placement, and water safety. This activity is always at risk because of the seed-funding nature of federal project support. Its funding category may end in 2006. It does not address some crucial EMS system issues such as recruitment and retention.

EMS system and lead agency information dissemination to EMS providers is identified as an ongoing problem, particularly with the new reorganization of licensing responsibilities. The 1991 assessment recommended the publication of a newsletter or other device to all providers to address this problem (perhaps integrating the needs of EMS-related state professional chapters and their members as well). This remains an opportunity.

Paid and volunteer professional recruitment/retention and service financial stability have been identified as two paramount barriers to the advancement of many services and the very continuation of others. The 1991 assessment report recommended an aggressive and sustained campaign of public information to create an image of a professional system which taxpayers should be proud to support and to which current and prospective providers can be proud to belong. This is still needed.

The *Rural and Frontier EMS Agenda for the Future* (National Rural Health Association, 2004) recommends programs of community-level "informed self-determination". These:

- assess the performance of the EMS service;
- inform the community of the assessment results;
- inform the community of alternative forms of EMS coverage and their associated costs; and
- lead the community or its elected leaders to determine the level and type of response desired and the amount the community will invest to achieve that.

The Critical Illness and Trauma Foundation (CIT), based in Montana, assisted with the creation of the *Rural and Frontier EMS Agenda for the Future*. Additionally, it has extensive experience in conducting community EMS assessments and planning processes (a major component of "informed self-determination").

Recommendations

- **EMSTS Section should utilize the NHTSA PIER document and an advisory group of providers and public information/media professionals for guidance, to develop a comprehensive EMS public information, education and prevention program plan.**

    - This plan should include an aggressive and continued campaign, around the Montana EMS logo, of a competent, professional system which tax-payers can be proud to support, and to which current and prospective providers can be proud to belong. Materials for local recruitment/retention and other uses should be developed around this theme and made available to services.

- Legislature should fund and EMSTS Section should implement a one FTE position within the EMSTS Section to conduct EMS system, citizen access, recruitment and retention, service PIEP technical assistance and related PIEP programming. With this position, support related state government efforts in public health, public safety, and emergency health preparedness.

- Legislature should fund and EMSTS Section should implement a frequent and regular system newsletter to system participants. Consider consolidating the

communications needs of all EMS related organizations in Montana (e.g. ACEP chapter, ACS Committee on Trauma, SIEC, ENA Chapter). Additionally consider advertising as a funding source.

H. MEDICAL DIRECTION

Standard

EMS is a medical care system that involves medical practice as delegated by physicians to non-physician providers who manage patient care outside the traditional confines of office or hospital. As befits this delegation of authority, the system ensures that physicians are involved in all aspects of the patient care system. The role of the State EMS Medical Director is clearly defined, with legislative authority and responsibility for EMS system standards, protocols and evaluation of patient care. A comprehensive system of medical direction for all out-of-hospital emergency medical care providers (including BLS) is utilized to evaluate the provision of medical care as it relates to patient outcome, appropriateness of training programs and medical direction. There are standards for the training and monitoring of direct medical control physicians, and statewide, standardized treatment protocols. There is a mechanism for concurrent and retrospective review of out-of-hospital emergency medical care, including indicators for optimal system performance. Physicians are consistently involved and provide leadership at all levels of quality improvement programs (local, regional, state).

Status

Among the most embryonic features of Montana's EMS system is its manner of providing medical direction for the state's EMS providers. At the state level, there is no state EMS medical director. For some matters, the Board of Medical Examiners (BOME) and a medical director subcommittee serve this function de facto. This is particularly true for all care provided at the basic life support (BLS) level. The subcommittee may also advise the EMSTS Section when needed.

There is no system of regional medical direction. Within each of the six EMS regions, there is no regional medical director or organization or formal communication among local medical directors.

Medical direction is mandated for services providing advanced life support (ALS) care or BLS with endorsements; that is any care beyond the most basic. Without doubt, there are medical directors who are qualified and engaged in the system, though none are full-time and few are board certified in emergency medicine. However, the nature of Montana and its population distribution inherently result in limited local options for EMS medical direction in many communities. Relatively unqualified physicians or physician assistants may be coerced to provide EMS medical direction as a matter of community service or a stipulation of their jobs.

The less than desirable result is substantial heterogeneity in the availability and application of EMS medical direction. Some services benefit from active and qualified input from physicians for whom EMS is an avocation. Others yearn for such involvement but only have access to physicians willing to provide the air of legality. Likely, there are others who feel fortunate to be free of an engaged EMS medical director and the potential additional accountability that might entail.

The BOME establishes roles and responsibilities of EMS medical directors. The board is currently completing an Internet-based educational program that will be available to EMS medical directors to help them improve in their efforts and better understand the particulars of their roles in Montana. Many of the program's modules are already done. Limited liability protection exists for off-line EMS medical directors and for on-line medical directors whose practice is not principally in an emergency room or trauma ward.

Provisions to receive on-line medical direction are required for ALS and BLS with endorsement providers. Communications system limitations may sometimes affect its immediate availability.

Heterogeneity with regard to EMS medical director involvement translates to similar disparity in terms of review of prehospital emergency medical care. There are no uniformly applied indicators of EMS system performance or clinical care quality. Although there are long range plans to facilitate evaluation, neither the BOME nor EMSTS Section require or assist with evaluation at local levels.

Recommendations

- **The BOME and EMSTS Section should work collaboratively to establish, through legislation, the role of state EMS medical director and appoint to that post a qualified physician who will serve both organizations with continuity of medical oversight, vision, and advice with regard to the state's EMS system.**

- The BOME, with the state EMS medical director and in collaboration with the EMSTS Section, should establish a system of regional medical direction. Regional EMS medical directors would serve as additional resources to EMS agencies in their regions and provide representation to the BOME and EMSTS Section.

- The BOME should establish lines of authority and responsibility between the board, state EMS medical director, regional EMS medical directors, and local EMS medical directors.

- **The BOME, in collaboration with the EMSTS Section, should establish clinical performance indicators (at least a few) that are uniformly monitored throughout the state's EMS system.**

- The BOME should ensure that all of Montana's EMS medical directors receive newly developed educational tools, whether they are created by the board or procured from other sources.

- The BOME and EMSTS Section should continually explore options to create incentives of any sort to recruit EMS medical directors and encourage their active involvement within the EMS system.

- The BOME should establish a goal that all BLS EMS providers in Montana will have an active relationship with an EMS medical director.

I. TRAUMA SYSTEMS

Standard

To provide a quality, effective system of trauma care, each State must have in place a fully functional EMS system; trauma care components must be clearly integrated with the overall EMS system. Enabling legislation should be in place for the development and implementation of the trauma care component of the EMS system. This should include trauma center designation (using ACS-COT, ACEP, APSA-COT and/or other national standards as guidelines), triage and transfer guidelines for trauma patients, data collection and trauma registry definitions and mechanisms, mandatory autopsies and quality improvement for trauma patients. Information and trends from the trauma registry should be reflected in PIER and injury prevention programs. Rehabilitation is an essential component of any statewide trauma system and hence these services should also be considered as part of the designation process. The statewide trauma system (or trauma system plan) reflects the essential elements of the Model Trauma Care System Plan.

Status

Montana, the “Last Best Place”, faces more challenges in trauma system implementation than almost all other states. Despite the geographic challenges present in Montana, many individuals interested in trauma system implementation have demonstrated leadership abilities both within the State as well as at a national level. It is because of these Montana “trauma system pioneers” that the citizens of Montana enjoy the improvements in trauma care that are present today.

Since 1991, many changes are evident as regards trauma system development in the State of Montana. The most important factor is the commitment of the health care professionals throughout the State. Despite the small numbers of health care providers in most areas, the regional trauma advisory committees usually have attendance from many of the included facilities. An annual trauma system conference now precedes the Rocky Mountain Rural Trauma Symposium and is demonstrative of the commitment that exists in Montana.

Enabling legislation was passed in 1995 to design, implement, and evaluate a trauma system for Montana. This legislation has not been funded adequately, but partial funding was provided by the 1997 legislature. This funding now provides for a full-time trauma system manager and some trauma care system development activities.

To this point, trauma center designation has been through self-designation alone. It is commendable that there exist today four American College of Surgeons verified Level II

trauma centers in Montana; additionally there is one Level III trauma center. The Montana trauma system manager has been performing trauma consultation visits for all acute care facilities within the State. Fifty-one of the 63 Montana healthcare facilities have been visited to date. A collaborative relationship has developed between the Wyoming trauma care system and the Montana trauma care system with hospital site visits being treated as shared responsibilities. This relationship could serve as a model for other adjoining states to achieve the same degree of mutual support – in this way it may be possible to achieve the dream of trauma care system coverage across the entire United States.

Triage and transfer guidelines do not exist and there is no current effort to write these important documents. Statewide trauma data collection to this point has been voluntary with the Level II trauma centers all contributing. Recently, paper-based reports have started to be generated from the outlying Critical Access Hospitals (CAH) and submitted to the Montana trauma system manager. The potential for a true statewide trauma registry exists and is achievable.

Although several preventable mortality studies have been performed in Montana, there is no system wide quality improvement process other than review of patient data submitted by the current trauma centers alone. There is no evidence that data from the trauma registry is used in PIER or injury prevention programs to date.

Trauma education of health care providers remains a significant concern of the providers who work in today's system. It is estimated that in the Western part of the State, three quarters of EMTs and three quarters of RNs (who may be the first health professionals to provide care for the injured patient) have never had a basic trauma course. This is a concern that can be addressed immediately.

Class rosters for the Advanced Trauma Life Support Courses can be prioritized in a manner that ensures enrollment for those physicians and physician assistants who work in frontier locations. Additionally, the four auditor slots available for each course can be made available for nurses and physician assistants. Consideration can be given to holding a course annually exclusively for physician assistants.

Recommendations

- **The legislature should provide adequate funding for implementation of the statewide inclusive trauma care system.**

- **EMSTS Section should ensure submission of trauma patient data to the statewide trauma registry, including prehospital, hospital, and outcome data. The registry should be inclusive in the sense that every patient seeking medical care for trauma and each individual who dies as a result of**

trauma is included in this registry. These data should be submitted to the National Trauma Data Bank on an ongoing basis.

- The legislature should revise the trauma legislation, as necessary, to ensure hospital privacy during the trauma center designation process.

- EMSTS Section should ensure that each acute care facility is provided the opportunity to meet state requirements to participate in the inclusive trauma care system as a regional trauma center, area trauma hospital, community trauma hospital, or trauma receiving facility.

- **EMSTS Section should create statewide trauma triage criteria and the statewide trauma transfer guidelines/criteria.**

- Each trauma facility within the inclusive trauma care system should have a written transfer agreement with at least one of the (ACS Level II) regional trauma centers.

- The legislature should provide adequate funding to hire a physician as the trauma system medical director and a full-time FTE for trauma registry management and quality improvement feedback to hospitals, the STCC, and RTACs.

- EMSTS Section should ensure that PHTLS for EMTs, and TNCC, TERN, or ATCN courses for nurses is made available to each provider, particularly in the most remote communities.

- EMSTS Section should ensure that the rural TEAM course or the ACS Rural Trauma Development course is taught on a regular basis at each designated community trauma hospital and trauma receiving facility. In the near term, all Critical Access Hospitals should be provided this opportunity.

- EMSTS Section should make public statewide facility and physician capabilities in order to prevent unnecessary transfer of patients out-of-state (e.g. pelvic fracture patients).

- EMSTS Section should develop statewide trauma prevention programs based on needs apparent from the state trauma registry data.

- The legislature should mandate autopsies for all trauma patients and provide adequate funding.

- **EMSTS Section should reorganize the EMS regions to be in line with the trauma regions. Ideally, disaster planning would also follow these**

consolidated regions.

J. EVALUATION

Standard

A comprehensive evaluation program is needed to effectively plan, implement and monitor a statewide EMS system. The EMS system is responsible for evaluating the effectiveness of services provided victims of medical or trauma related emergencies, therefore the EMS agency should be able to state definitively what impact has been made on the patients served by the system. A uniform, statewide out-of-hospital data collection system exists that captures the minimum data necessary to measure compliance with standards (i.e., a mandatory, uniform EMS run report form or a minimum set of data that is provided to the state); data are consistently and routinely provided to the lead agency by all EMS providers and the lead agency performs routine analysis of this data. Pre-established standards, criteria and outcome parameters are used to evaluate resource utilization, scope of services, effectiveness of policies and procedures, and patient outcome. A comprehensive, medically directed, statewide quality improvement program is established to assess and evaluate patient care, including a review of process (how EMS system components are functioning) and outcome. The quality improvement program should include an assessment of how the system is currently functioning according to the performance standards, identification of system improvements that are needed to exceed the standards and a mechanism to measure the impact of the improvements once implemented. Patient outcome data is collected and integrated with health system, emergency department and trauma system data; optimally there is linkage to databases outside of EMS (such as crash reports, FARS, trauma registry, medical examiner reports and discharge data) to fully evaluate quality of care. The evaluation process is educational and quality improvement/system evaluation findings are disseminated to out-of-hospital emergency medical care providers. The lead agency ensures that all quality improvement activities have legislative confidentiality protection and are non-discoverable.

Status

Montana's EMS system suffers from lack of meaningful evaluation. At local levels, efforts to pursue evaluation are hindered by widespread dependence on volunteers who are already over-burdened. At the state level, evaluation is impossible because of a lack of data. Thus, beyond intuition or gestalt, it is difficult to say what in Montana EMS works well and what does not, and whether or not it is doing the job one might think it is.

State rules dictate that EMS services in Montana submit specific data to a central repository. However, the software to handle such data never functioned as required. Thus, the rule is not enforced and data is not submitted.

Some EMS services clearly attempt to evaluate select aspects of their own performance. However, there is a spectrum of effort, from no evaluation to assessment of patients' satisfaction. Currently, there is no initiative by the EMSTS Section to facilitate evaluations at the local level or provide guidance in this regard.

Evaluation of the EMS system can be considered in three aspects. In increasing meaningfulness and complexity to assess, they are structures, processes, and outcomes. Structure, as the least dynamic, is the least challenging to evaluate. The EMSTS Section is aware of the physical EMS resources in Montana, but the structure of the system is anything but static. Across the state, individual services may be in continual flux as the immediate availability of volunteer personnel changes. Services that provide ALS level care might do so only part of the time, depending on specific personnel availability.

Process measures can provide additional insight. The assumption is often made that improved processes, as determined by some objective measure, translate to improved outcomes. For example, shorter response times might lead one to believe that survival of certain conditions will be improved. Depending on the process and the outcome, the link may or may not be valid. On a statewide basis, there is no organized knowledge of response times or other process measures. It is not clear to what extent local EMS services make an attempt to identify and track processes that are meaningful to their own performance.

The difficult challenge is to evaluate outcomes. There have been occasional focused efforts to determine outcomes for specific conditions over finite time periods (e.g., preventable trauma-related mortality). If we consider patient satisfaction to be important, then some EMS services have made sporadic efforts to track this outcome. The state highway traffic safety office tracks data related to traffic safety. There is promise that some of the resulting information derived from these efforts can be linked to EMS activity. For the most part, however, outcomes determinations are beyond the scope of current evaluation efforts in Montana EMS.

The EMSTS Section has great expectations for a new data collection system currently being tested and soon-to-be deployed. The hope is that the prehospital data system, using national EMS information system standards, will be implemented by all EMS services. Data will be electronically submitted to a central statewide information system. Analyses of available information will facilitate establishment of continuous evaluation and quality improvement programs. Previously, researchers were able to demonstrate the potential to enhance information by means of probabilistic linkage of multiple disparate databases in Montana. Such abilities could further augment the power of the EMS information system and its capacity to track meaningful outcome measures. However, all of these efforts will take years to initiate and longer to bear fruit.

Recommendations

- **The EMSTS Section should expeditiously test and deploy its new data collection system.**

- The EMSTS Section should prepare EMS services for the requirement to submit specific data to the state as soon as the new data collection system is deployed.

- **The EMSTS Section should facilitate evaluation at the local levels, by preparing and disseminating tools or resources that EMS providers can use to develop understanding of the importance of evaluation and help them pursue specific evaluation efforts; such action by the EMSTS Section should not be delayed any longer by lack of readiness of an electronic solution or its analysis.**

- **The EMSTS Section should develop focused evaluation projects for which it can recruit participation by the state's EMS providers.**

- The EMSTS Section should establish specific goals and timelines with regard to its efforts to evaluate EMS structures, processes, and outcomes throughout Montana.

- The EMSTS Section, BOME, and local EMS providers should use evaluation results to modify resource allocation, plan education programs, and educate policy and lawmakers, other health care workers, other EMS providers, and the public.

- The state legislature should provide information derived during EMS quality improvement activities with protection from legal discovery.

L. CURRICULUM VITAE

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Medical Director, STAT-MD Emergency Medical Communications Center
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EMSI Regional EMS Council
Medical Direction Committee
National Association of EMS Physicians
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American College of Emergency Physicians
American Public Health Association
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ORGANIZATIONS/APPOINTMENTS

American College of Surgeons Committee on Trauma, ATLS Subcommittee, Chair, 2003-
Ad Hoc Committee on Trauma Systems, ACS Committee on Trauma, Member, 1999-
Madigan Army Medical Center, Tacoma, Washington, Surgical Chief, ICU
47th Combat Support Hospital, Saudi Arabia and Iraq, Chief, Trauma Surgery
Inova Fairfax Hospital, Falls Church, Virginia, Vice Chief, Trauma Services
U.S. Public Health Service, Division of Trauma and Emergency Medical Systems, BHRD, HRSA, Director
Uniformed Services University of the Health Sciences (USUHS), Department of Surgery, Director of Trauma Research
USUHS, Division of Trauma and Combat Surgery, Department of Surgery, Chief
National Capital Area Medical Simulation Center, Surgical Simulation Laboratory, Director
USUHS, Professor of Surgery 2002-
Oregon Health Sciences University, Clinical Associate Professor of Surgery, 2002-
Editorial Board, Emergency War Surgery, 2001-2002
NATO Handbook, Third United States Revision
Society of Apothecaries of London, Examiner, 1999-
Diploma in the Medical Care of Catastrophes
Journal of Trauma, Senior Reviewer, 1999-
Program Committee, Medicine Meets Virtual Reality, 2000-2003
HRSA Ad Hoc Committee to write Model Trauma Care System Plan, 1992, 2003
Institute of Medicine Committee on Vision for Space Medicine Beyond Earth Orbit, Member 1999-2001
Site Reviewer, American College of Surgeons, Verification Review Committee, 2004-
Trauma Center Site Reviewer, Pennsylvania, Virginia, Illinois
ACS Trauma Systems Consultation Subcommittee, Member and Reviewer/Observer, State of North Carolina
DOT/ NHTSA EMS Reassessment Program, TAT, Member, State of Mississippi

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ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors
- Rural Committee-Staff
- Data Committee- Staff
- Communications Technology Committee-Staff
- Communications Technology Liaison

National Association of EMS Physicians
- Associate Member
- Communications Technology Liaison

National EMS Management Association
- Board of Directors
- Communications Technology Liaison

National Association of EMTs
- Communications Technology Liaison

US Department of Homeland Security
- SAFECOM (Communications Interoperability)
- Executive Committee, Advisory Board, Several committees and work groups
- EGOV Disaster Management Data Communication Initiative
- Emergency Data Exchange Language Project

National Traffic Incident Management Council
- NASEMSD Representative

National Public Safety Telecommunication Council
- Governing Board

ITS America Public Safety Advisory Group
- Chair, Medical Subcommittee

Federal Communications Commission
- Media Reliability and Security Council

National Rural Health Association
- EMS Committee

Maine EMS Trauma Advisory Committee
- State Trauma System Manager

American Public Health Association

DOT/NHTSA, EMS Assessment Program, TAT Member, States of Arkansas, Alabama, Montana and South Dakota

New England EMS Council

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Director, Office of Emergency Medical Services
Virginia Department of Health
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ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors (1979-1996)
    Past President
    Past Chairman, Government Affairs Committee
National Association of EMS Physicians, Member
American Medical Association,
    Commission on Emergency Medical Services (1982-87)
American Trauma Society
    Founding Member, Past Speaker House of Delegates
ASTM Committee F.30 on Emergency Medical Services
Institute of Medicine/National Research Council
    Pediatric EMS Study Committee, Member (1991-93)
    Committee Studying Use of Heimlich Maneuver on Near Drowning Victims, Member (1993-94)
World Association on Disaster and Emergency Medicine
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ORGANIZATIONS/ APPOINTMENTS

TIKI-MAST, Ft. Campbell, KY
- Former Member, Board of Directors

Tennessee Perinatal Advisory Committee
- Subcommittee on Perinatal Transportation

National Association of State EMS Directors
- President
- Treasurer, Chairman; Finance Committee
- Executive Committee
- Former Chairman, Federal Death Benefits Committee
- Former Chairman, EMS Clearinghouse Management Team
- Former Vice President

Tennessee Board for Licensing Health Care Facilities
- Administrator, Trauma Center Inspection Team
- Task Force on Trauma Centers
- Task Force on Pediatric Trauma Centers

ASTM, Chairman, Committee F30 on EMS
- Chairman, Task Group .03.05 on EMS Financing

Tennessee Division, American Trauma Society
- Board of Directors

Tennessee Critical Incident Stress Management, Inc.
- Board Member, Treasurer

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NC State Emergency Response Commission Member
HRSA EMSC Grant Review Team Member
NC State Trauma Advisory Committee Member
NC American Heart Association ECC Committee Member
NC Unintentional Death Task Force Member
NC Dept. of Transportation Executive Committee for Highway Safety Member
NC Bioterrorism Steering Committee Member
NC SNS/Chempack Task Force Member
NC Brain Injury Task Force Member